

REMARKS

Reconsideration of this application is respectfully requested.

Claims 14 and 16-56 are presented for consideration.

Claims 14 and 16-56 stand rejected in the Office Action under 35 U.S.C. 103 as obvious in view of Suste. Claims 14 and 32-35 also stand rejected for obviousness-type double patenting in view of applicants' claims 1-29 in their U.S. Patent No. 4,866,349.

Present claims 14 and 36-56 are directed to an energy efficient technique for driving display panels utilizing means for obtaining energy recovery. Claims 16-35 are directed to the unique single or double pulse addressing technique of the present invention.

With respect to this last group of claims, applicant has adopted the Examiner's suggestion and herein presents amended claims 16-35. Amended claims 16-35 now more clearly recite that the address electrodes of one array (either a plurality of electrodes or all of the electrodes in the array, but at least more than one electrode in the array) are charged and then the selective discharging of the non-selected electrodes is accomplished before the opposite polarity discharge pulse is applied.

This technique may be seen most clearly with respect to Figures 2-4 and the discussion of the addressing operation of the Y axis and the X axis using the YAP and XAP signals particularly discussed in the specification at pages 9-16. As an example, with respect to Figure 4, charging of X address electrodes is provided by the first XAP pulse. Selective discharging of the non-selected electrodes then brings them to a low voltage level, while leaving the selected address electrodes at a high voltage

level, through the driver transistors and driver logic in accordance with the information to be entered. Thereafter the opposite polarity YAP pulse is applied to at least one address electrode in the Y array to discharge the respective cells and enter the information into the panel.

In view of the present amendment and the Examiner's indication, to which we agree, that such structure, operation and result are not found in Suste, claims 16-35 patentably distinguish over Suste and are in condition for allowance.

Addressing technique claims 32-35 have also been rejected on the grounds of obviousness-type double patenting with respect to claims 1-29 of applicants' U.S. Patent No. 4,866,349 which issued on applicant's original parent application. This rejection is specifically traversed as the present claims 32-35 are directed to X, Y electrode array panels with the improved addressing technique of the present invention. In contrast, the addressing technique claims of the '349 patent, such as the Examiner's referred to patent claim 4, are directed to an independent sustain and address ac plasma panel (ISA panel) which includes sustain means, and wherein the address means defines address generators with "pulses of a first polarity", "two consecutive pulses of a second polarity", defining the pulse width of the first polarity with respect to the width between the two pulses, and with the address generator having pulses of at least two different amplitude levels, one for writing and one for erasing information from the panel. Claims 32-35 are thus patentably distinct from claims 1-29 in the '349 patent.

The second group of claims in this application, namely 14 and 36-56 have been rejected under 35 U.S.C. 103 as unpatentable over Suste. This rejection is respectfully traversed for the following reasons. The Examiner's stated

grounds of rejection is that "the use of an inductor coupled to the panel electrodes for the charging and discharging of the panel capacitance... would have been obvious" in view of Suste.

First of all, this ground of rejection merely refers to an inductor coupled to the panel and ignores the remaining specifically claimed elements of the apparatus and method claims presented in this case. For example, notice that in claim 36 applicant is not merely claiming the coupling of an inductor to the panel electrodes as this simple combination is set forth in the preamble of the claim. Claim 36 for instance in addition to coupling of an inductor to the panel also calls for:

"charging the panel capacitance through said inductor, initially while storing energy in said inductor until the magnitude of the inductor current reaches a maximum, and secondly while removing the stored energy from said inductor until the inductor current reaches zero; and

discharging the panel capacitance through said inductor, initially while storing energy in said inductor until the magnitude of the inductor current reaches a maximum, and secondly while removing the stored energy from said inductor until the inductor current reaches zero."

In a similar manner reference may be made to apparatus claim 50 which calls for an energy efficient driver circuit which includes an inductor coupled to the panel electrodes and in addition recites:

"means for charging the panel capacitance through said inductor, initially while storing energy in said inductor until the magnitude of the inductor current reaches a maximum, and secondly while removing the stored energy from said inductor until the inductor current reaches zero; and

means for discharging the panel capacitance through said inductor, initially while storing energy in said inductor until the magnitude of the inductor current reaches a maximum, and secondly while removing the stored energy from said inductor until the inductor current reaches zero."

Suste does not show any structure capable of operating to provide the results as set forth in claims 14 and 36-56, as recited for instance in the above referred to claims 36 and 50. Neither is there any teaching or suggestion of any additional cited art which supplies the elements which are not found in Suste. It is not proper for the Examiner to merely refer to Suste and suggest it would be obvious to modify Suste to somehow provide applicants' invention. There must be a reference to some prior art which makes the suggestion or motivation to modify Suste to supply the structure and functions of applicants' invention. In re Peter S. Mills, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990).

Also see In re Newell, 13 USPQ2d 1248 (Fed. Cir. 1989) wherein it was held:

"It is well established that in deciding that a novel combination would have been obvious, there must be supporting teaching in the prior art.

\* \* \* \*

There is no suggestion or motivation in the prior art to combine these elements as combined by Newell...." (In re Newell, 13 USPQ2d, at 1250).

Accordingly, claims 14 and 36-56 patentably distinguish over Suste.

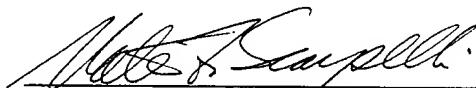
Claim 14 has also been rejected on the basis of obviousness-type double patenting with respect to claims 1-29 of applicants' '349 patent. This rejection is specifically traverse for the following reasons.

Claim 14 of the present application as described above is directed to the energy efficient driver in which an inductor is coupled to a display panel with selective switching of the coupling to timely enable the panel capacitance to charge and discharge through the inductor in the manner recited in claim

14. In the claims of the '349 patent, and in specific reference to patent claim 12 as referred to by the Examiner, there is recited an ISA ac plasma panel which includes the address technique aspect of the present invention with unique timed addressing pulses, and wherein sustain means incorporate an inductor coupled to the panel with timed charging and discharging of the panel capacitance through the inductor. Claim 14 is therefore patentably distinct from the combination of elements of claim 12 and of any of the additional claims 1-29 of the '349 patent.

In view of the present amendment, this application with claims 14 and 16-56 is in condition for allowance and such action is respectfully requested.

Respectfully submitted,



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